

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11) EP 1 282 157 A3

(12)

## **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3: 31.03.2004 Bulletin 2004/14

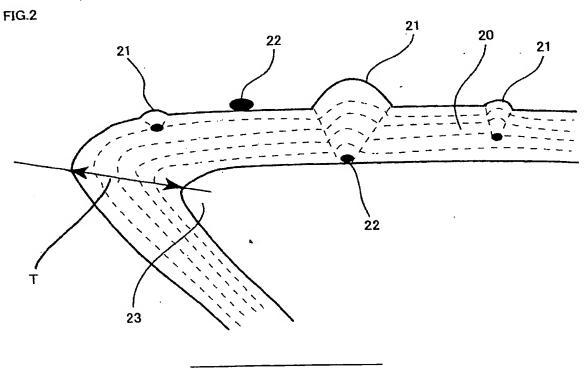
(51) Int CI.7: H01L 21/00, G03F 7/00

- (43) Date of publication A2: 05.02.2003 Bulletin 2003/06
- (21) Application number: 02255150.1
- (22) Date of filing: 23.07.2002
- (84) Designated Contracting States:
  AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
  IE.IT LI LU MC NL PT SE SK TR
  Designated Extension States:
  AL LT LV MK RO SI
- (30) Priority: 27.07.2001 JP 2001227549
- (71) Applicant: CANON KABUSHIKI KAISHA Tokyo (JP)

- (72) Inventor: Edo, Ryo, c/o Canon Kabushiki Kaisha Tokyo (JP)
- (74) Representative:
  Beresford, Keith Denis Lewis et al
  BERESFORD & Co.
  16 High Holborn
  London WC1V 6BX (GB)
- (54) Apparatus and method for controlling the temperature of a substrate

(57) A substrate processing apparatus according to this invention includes a first chamber (1), a second chamber (3) which has a first valve (4) and a second valve (5), and communicates with the first chamber through said second valve, a thermoregulator which regulates a temperature of the substrate arranged in the

second chamber, and a controller (30) which controls a time for which the thermoregulator regulates the temperature of the substrate. A substrate transferred to the second chamber through the first valve is temporally held in the second chamber, and then transferred to the first chamber through the second valve.



Printed by Jouve, 75001 PARIS (FR)



## **EUROPEAN SEARCH REPORT**

Application Number EP 02 25 5150

ategory	DOCUMENTS CONSIDERED  Citation of document with indication of relevant passages		Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)		
X	US 6 224 312 B1 (SUNDAR 1 May 2001 (2001-05-01) * column 14, line 30-55	1-13, 20-22 14-19	H01L21/00G03F7/0 0 G03F7/20			
Υ.						
Х	US 5 314 541 A (SAITO M. 24 May 1994 (1994-05-24 * the whole document *	ASASI ET AL) )	1,2, 20-22			
Х	WO 99 31714 A (APPLIED   24 June 1999 (1999-06-2	MATERIALS INC) 4)	1-5, 7-13, 20-22	·		
	* the whole document *					
Y	EP 0 863 439 A (CANON K 9 September 1998 (1998- * the whole document *	K) 09-09)	14-19	TECHNICAL FELDS		
X	US 5 618 350 A (ISHIKAW 8 April 1997 (1997-04-0 * column 7, line 45-65	18)	1-11			
Х	US 5 925 227 A (ISHIHAR 20 July 1999 (1999-07-2 * figure 6'* * column 7, line 8-27 *	20)	1	C23C H01L G03F		
A	US 5 267 607 A (WADA YU 7 December 1993 (1993-1 * the whole document *	JICHI) 12-07)	1-22			
A	PATENT ABSTRACTS OF JAF vol. 017, no. 538 (E-14 28 September 1993 (1993 & JP 05 152425 A (TOKYO 18 June 1993 (1993-06-1 * abstract *	440), 3-09-28) D ELECTRON LTD),	1-22			
	The present search report has been	Date of completion of the searce		Examiner Castagné, C		
	THE HAGUE	10 February 20	incinte undertying	the invention		
Y p	CATEGORY OF CITED DOCUMENTS articularly relevant it taken alone articularly relevant it combined with another occument of the same category echnological background ion-written disclosure	E : earlier pate alter the filir D : document o L : document o	nt document, but ig date inted in the applicated for other real	published on, or ation		

## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 02 25 5150

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

10-02-2004

	Patent documen cited in search rep		Publication date		Patent tami member(s		Publication date
US	6224312	B1	01-05-2001	US	2001016157	A1	23-08-2001
US	5314541	Α	24-05-1994	JP	4349929	A	04-12-1992
	002 (0 (0	• • •		JP	2973141	B2	08-11-1999
				JP	4349930	A	04-12-1992
				JP	3238427	82	17-12-2001
				JP	5029448	Α	05-02-1993
				KR	155572	B1	01-12-1998
				US	5455082	Α	03-10-1995
WO .	9931714	Α	24-06-1999	US	6270582	B1	07-08-2001
				JP	2003526395	T	09-09-2003
				TW	423030	В	21-02-2001
				WO	9931714	A1	24-06-1999
EP	0863439	Α	09-09-1998	JP	3472066	B2	02-12-2003
				JP	10247616	Α	14-09-1998
				JP	11145050	Α	28-05-1999
				EP	0863439	A2	09-09-1998
				U\$	6185474	B1	06-02-2001
US	5618350	Α	08-04-1997	JP		Α	11-10-1996
	_			KR	208815	B1 	15-07-1999
บร	5925227	A	20-07-1999	JP	9312262		02-12-1997
				KR	270459	81	01-12-2000
US	5267607	A	07-12-1993	JP	3036895	B2	24-04-2000
	-			JP	4350929	Α	04-12-1992
				JP	3 <b>081669</b>	B2	28-08-2000
				JP	4350930	A	04-12-1992
				KR	188454	B1 	01-06-1999
JP	05152425	A	18-06-1993	NONE			

\_\_\_\_

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

FORM POASS